

A CRITICAL ANALYSIS OF LEGAL REGIME OF SHIP-BREAKING AND SHIP-RECYCLING IN BANGLADESH

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ABSTRACT

Shipbreaking and ship recycling is one of the major industries of Bangladesh. It is a significant contributor to Bangladesh's economy and employment as well as one of the major sources of steel supply for the nation. However, this comes at a huge cost to the environment and human health and the current governance of the industry is unable to address this issue properly. This paper offers a comprehensive analysis of the legal framework governing ship-breaking and ship-recycling in Bangladesh, with a primary focus on environmental degradation. It critically examines both national and international instruments aimed at regulating this industry. Drawing upon extensive research and literature review, the paper evaluates the effectiveness of existing legal mechanisms in addressing environmental concerns associated with ship-breaking activities. Special attention is paid to the compliance and enforcement mechanisms within these legal frameworks. Through a comparative analysis of relevant statutes, conventions, and case law, the paper highlights gaps and shortcomings in current regulations which need to be addressed to strengthen environmental protections in the ship-breaking industry. This study seeks to augment the existing dialogues on encouraging sustainable practices in the ship-breaking and ship-recycling industry in Bangladesh by offering a nuanced understanding of the complex interactions between legal regulations and environmental degradation.

Keywords: Green ship-breaking industry; End-of-life vessels; Dry-dock recycling approach; Maritime safety; Environmentally-sound management

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1. INTRODUCTION

Bangladesh started shipbreaking informally in 1960 and formalized it in 1974.¹ Since then, Bangladesh has been dismantling end-of-life vessels. This whole industry harms the coastal environment of Bangladesh and the health of ship-breaking labourers. Due to the availability of cheap labour, inefficient environmental laws, and excessive steel demands,² there are almost 150 ship-breaking yards across the country.³ These yards broke 197 ships last year, 34% of total ships dismantled worldwide.⁴ Usually, shipbreaking is done in three approaches; i.e., a) dry-dock recycling, b) pier breaking, and c) slipway recycling.⁵ In the dry-dock recycling approach, the ship is placed in a dock and dismantled in pieces after washing. Pier breaking uses a crane to remove the dismantled pieces. Slipway recycling uses mobile cranes and humans to dismantle the vessel, which is the most harmful form of shipbreaking. Unfortunately, slipway recycling is more prevalent in the ship-breaking industry of Bangladesh, which is not only prone to causing accidents but also harms the ecosystem. The dismantled plates release different chemicals, including PCBs, PAHs, Persistent Organic Pollutants, and anti-fouling paints into the soil of beaches, harming the micro-organisms of coastal areas by polluting seashore soil and water simultaneously. Bangladesh needs infrastructural and legislative changes to create a sustainable ship-breaking industry.

This paper addresses the latter one and explores the legal backdrops regarding the industry. Part II of the paper sheds light on the contemporary concerns of ship breaking in Bangladesh. This part reviews different literatures to justify the arguments. Part III of the paper focuses on the different legal instruments from international and national arena. This part takes a critical approach towards the statutes and conventions to find the suitable provisions to promote sustainable ship-breaking industry. Part IV of the paper discusses about current scenario of ship breaking in Bangladesh and part V follows part four to portray environmental conditions of coastal zones. Here it also keeps a focus on non-compliance with statutory laws to give a clear trajectory of the whole problem. Part VI gives a glimpse of the judicial developments in Bangladesh regarding the current ship-breaking

¹ Jan MÃ and Iler Hansen, 'The Graveyard of Giants: A History of Ship Breaking in Bangladesh' (*gCaptain*, 28 February 2012), <<https://gcaptain.com/graveyard-giants-history-ship/>> accessed 7 June 2024.

² Jewel Das & Muhammed Ali Shahin, 'Ship Breaking and its Future in Bangladesh' (2019) 6(2) *Journal of Ocean and Coastal Economics* 2.

³ 'Overview of Ship Breaking in Bangladesh' (*Ship Breaking in Bangladesh*) <<https://shipbreakingbd.info/overview-of-ship-breaking/>>.

⁴ TBS Report, 'Bangladesh remains on top in shipbreaking' (*The Business Standard*, October 22, 2021) <<https://www.tbsnews.net/dropped/industry/bangladesh-remains-top-shipbreaking-319333>>.

⁵ ILPI, 'Shipbreaking Practices in Bangladesh, India, and Pakistan – An Investor Perspective on the Human Rights and Environmental Impacts of Beaching.' (International Law and Policy Institute, Oslo, Norway, 2016) p.7. <<https://www.klp.no/om-klp/samfunnsansvar/artikler/kampen-for-jernslavene-pa-d-dsstrendene/Shipbreaking%20report%20mai%202016.pdf>>.

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and ship-recycling industry. Here it centres its discussion on different case laws and commentaries related to ship-breaking. Part VII of the paper concludes the discussion by aiming at sustainable ship-breaking industry by removing different concerns and complications.

2. METHODOLOGY

This paper follows doctrinal approach. It critically assesses the legal regime and current scenario of ship-breaking and ship-recycling industry of Bangladesh. To demonstrate the actual scenario, it dives deeper into the provisional analysis of national and international laws and tries to find out the anomalies by taking assistance from secondary sources. Hence, during this desk-based research, the authors have taken help from different books, journal articles, international conventions, statutes, policies, newspapers and blogs etc. The papers also kept special emphasis on the judicial developments to advocate for environment-friendly green ship-breaking industry and its procurement through legal provisions.

3. THE CONTEMPORARY CONCERNS OF SHIP BREAKING IN BANGLADESH

Bangladesh, a major ship-breaking hub, needs to comply with the Basel Convention to reduce marine pollution and environmental damage. Bangladesh has not adopted the core principles of international ship-breaking regulations, especially the Basel Convention.⁶ The country's national statutes are insufficient. The production of 25-30% of the country's steel demand does not justify damaging coastal zones or the insufficiency of laws. The Basel Convention is found to be insufficient and biased too towards developed countries. It encourages the globalization of hazardous wastes to developing countries,⁷ which poses environmental and health risks. The convention also imposes more restrictions on ship-importing developing countries than on ship-exporting developed countries. International regulatory bodies cannot deny the liability of damaging the coastal environment of developing countries through inconsiderate practices.

Considering these factors, Saiful Karim in his article discusses about international legal regime regarding ship-breaking across the world.⁸ Basel Convention regulates the transboundary movements of wastes and their disposal. It emancipates derogatory and unequal treatment by imposing more conditions on end-of-life ship-importing developing countries. End-of-

⁶ Shawkat Alam & Abdullah Al Faruque, 'Legal regulation of the shipbreaking industry in Bangladesh: The international regulatory framework and domestic implementation challenges', (2014) 47 Marine Policy 46-56, <<https://doi.org/10.1016/j.marpol.2014.01.022>>.

⁷ Frey, R. S., 'Breaking Ships in the World-System: An Analysis of Two Ship Breaking Capitals, Alang India and Chittagong, Bangladesh' (2013) CSSJ Working Papers #13-01, Center for the Study of Social Justice.

⁸ Saiful Karim, 'Environmental Pollution from Shipbreaking Industry: International Law and National Legal Response', (2010) 22 Georgetown International Environmental Law Review 185.

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life ships cause serious damage to the environment and human lives. It is a violation of the common but differentiated treatment principle of international environmental law. Saiful Karim in a previous article opined developing countries follow archaic mechanisms to dismantle ships.⁹ Bangladesh is also complicit in this, as the claims of ship companies that their ships are safe for breaking, are accepted without any investigation, hence importing hazardous materials.¹⁰ According to the World Bank, between 2010 and 2030, Bangladesh will bring in 79.000 tons of asbestos, 240.000 tons of PCBs, and 69.200 tons of hazardous paints from end-of-life ships.¹¹

Nost and others have reaffirmed the existence of some harmful chemicals like polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), hexachlorobenzene (HCB), asbestos, dichlorodiphenyltrichloroethanes (DDTs) and short-chain chlorinated paraffins (SCCPs) in the air and atmosphere of yard and western zone of Chittagong city,¹² which are not only harmful but can also act as carcinogens after direct contact, putting workers at higher risks.¹³ The industry is also very harmful for marine lives. The Marine Institute of the University of Chittagong reported that the shipbreaking industry has wiped out 21 species and endangered 11.¹⁴ Talukder and others have measured the environment impact value and damage caused by the shipbreaking industry, assigning each factor a value of +5 to -5 for positive to negative.¹⁵ The negative impact on forestry and fisheries has a value of -5 (very high) and that on wetlands and wildlife is -4 (high) whereas the industry has a positive impact on employment and economy. However, the total environment impact value stands at -93, which indicates high levels of environmental degradation due to the industry.¹⁶ But, Bangladesh should comply with the Hong Kong Convention to build a green, marine and worker-friendly sustainable shipbreaking industry to build a better future for this industry focusing on

⁹ Saiful Karim, 'Violation of Labour Rights in the Ship-breaking Yards of Bangladesh: Legal Norms and Reality', (2009) 25(4) *The International Journal of Comparative Labour Law and Industrial Relations* 379, <https://doi.org/10.54648/ijcl2009025>.

¹⁰ Wafiur Rahman, 'OP-ED: Ship recycling industry and legal instruments in Bangladesh' (*Dhaka Tribune*, 30 June 2021), <<https://www.dhakatribune.com/business/251030/op-ed-ship-recycling-industry-and-legal>>.

¹¹ Ibid.

¹² Therese H. Nøst and others, 'High Concentrations of Organic Contaminants in Air from Ship Breaking Activities in Chittagong, Bangladesh' (2015) 49 *Environmental Science & Technology* 11372, <<https://pubs.acs.org/doi/epdf/10.1021/acs.est.5b03073>>.

¹³ Wei-Tei Wu and others, 'Cancer Attributable to Asbestos Exposure in Shipbreaking Workers: A Matched Cohort Study', (2015) 10(7) *PLOS ONE*, Retrieved from: <<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4507997/#:~:text=Mesothelioma%20cases%20were%20found%20in,dependent%20relationship%20with%20asbestos%20exposure>>.

¹⁴ NGO Shipbreaking Platform, 'The Environmental Costs', (n.d.) (*NGO Shipbreaking Platform*) <<https://shipbreakingplatform.org/our-work/the-problem/environmental-costs/>>.

¹⁵ Talukdar, M. I. and others, 'Environmental Impacts of Ship Breaking and Recycling Industry of Sitakunda, Chittagong, Bangladesh', (2015) 8(1) *Advances in Natural Science* 51, <<https://doi.org/10.3968/6492>>.

¹⁶ Ibid.

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environment impact value.¹⁷ It should not also consider the economic contribution of the industry, when it comes to the concern of environment.

Though the shipbreaking industry contributes much to the economy by meeting the demands of steel and employment in the country, it comes with the heavy cost of damaging the environment and human lives. Hence T. G. Puthucherril defines the loopholes in the international legal regime and advises ways to implement this international shipbreaking regulation by ensuring human rights and environmental integrity in the shipbreaking yards.¹⁸ Bangladesh shall also establish a sustainable legislative approach to build a sustainable ship-breaking industry via comprehensive compliance of national statutes with international regulations.¹⁹ Where it shall include the propositions of BASEL Convention, MARPOL Convention, Hong Kong Convention, IMO conventions and ILO guidelines in 'Bangladesh's Ship Recycling Act 2018' to build an environmentally friendly shipbreaking industry. A strategic plan and training modules would be ensuring full compliance with the Hong Kong Convention within ten years.²⁰ It would have helped to close the gaps between international regulations and Bangladesh's laws.

Saurabh Bhattacharjee also pointed out these gaps in international regulations and wrote about the transnational character of the shipbreaking industry forwarded domestic environmental hazards and harm against international trade of shipbreaking.²¹ The author compared the BASEL Convention with the Hong Kong Convention to find out whether the latter has closed the gaps of the former. The paper found out Hong Kong Convention remains the same 'useless piece of paper'²² like the BASEL Convention which violates the 'polluter pays principle' of international environmental law in trading end-of-life ships. Using a deposit-refund

¹⁷ Md. Imrul Jobaid and others, 'Ship Recycling and Its Environmental Impact: A Brief Overview of Bangladesh' (2014) 16(10) IOSR Journal of Business and Management 31-37. Retrieved from: <<https://www.iosrjournals.org/iosr-jbm/papers/Vol16-issue10/Version-1/E0161013137.pdf>>.

¹⁸ Puthucherril, T. G., *From Shipbreaking to Sustainable Ship Recycling: Evolution of a Legal Regime* (BRILL, 2010).

¹⁹ Md. Ashabur Rahman and others, 'A National and International Regulatory Framework for Establishing Sustainable Shipbreaking Industry in Bangladesh' (2019) 3(1) Bangladesh Maritime Journal 87-108. Retrieved from: <https://www.researchgate.net/publication/361305764_A_National_and_International_Regulatory_Framework_for_Establishing_Sustainable_Shipbreaking_Industry_in_Bangladesh>.

²⁰ Bishnu Dev Roy and others, 'Shipbreaking industry in Bangladesh: Legal, health, safety, & technical issues' (2022) 6(2) Bangladesh Maritime Journal 127-156. Retrieved from: <https://bsmmu.edu.bd/public/files/econtents/621c76d340f687-Shipbreaking%20industry%20in%20bangladesh_compressed.pdf>.

²¹ Saurabh Bhattacharjee, 'From Basel to Hong Kong: International Environmental Regulation of Ship-Recycling Takes One Step Forward and Two Steps Back' (2009) 1(2) Trade, Law and Development 193-230. Retrieved from: <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1760459>.

²² Rizwana Hasan, Final Speech of the NGO Platform on Shipbreaking Before the International Conference on the Safe and Environmentally Sound Recycling of Ships, May 15 2009, Hong Kong. Retrieved from: <http://www.shipbreakingplatform.com/dmdocuments/submissions/IMOSpeechRIZWANA_HASAN.pdf>.

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mechanism would tackle developing nations' lack of capacity to comply with international regulations, and upgrade the facilities of shipbreaking industries in developing countries by following the “polluter pays” principle.²³

Moreover, these crises are far derogatory in the case of Bangladesh. Because Bangladesh's laws on shipbreaking and ship recycling are inefficient in the first place and secondly they do not comply with international regulations of shipbreaking. International conventions are developed country friendly, this creates spaces for indispensable environmental harm in the developing countries. Bangladesh needs comprehensive rectification of international laws on shipbreaking and ‘implementation of the domestic laws’²⁴ simultaneously to mitigate human rights violations and environmental hazards.

4. LEGAL INSTRUMENTS REGARDING SHIP-BREAKING AND PRESERVATION OF THE COASTAL ENVIRONMENT

In discussing legal instruments, this paper will discuss all the conventions adopted by international agencies, i.e., International Maritime Organization. From Basel Convention to Hong Kong Convention, there were collective attempts by International Maritime Organization. Bangladesh is a part of the organization that has worked hand in hand to uplift the spirit of these organizations. This resulted in 'The ship Recycling Act 2018.' Apart from that, there are several other statutes relating to shipbreaking. To examine the standard of shipbreaking yards of Bangladesh, we will discuss these conventions and statutes.

4.1 International Regulations Regarding Ship Breaking

4.1.1 IMO Convention 1958

The International Maritime Organization was established through a convention in 1948 to fulfil the following objectives:²⁵

- a. To increase inter-governmental cooperation for ensuring maritime safety and preventing marine pollution,
- b. To reduce discrimination in ship-related international trade,
- c. To revise and change the unfair practices in the ship-related industry,
- d. To control the effect of shipping and shipbreaking on the marine environment; and

²³ Rahman, S.M. M. and Audrey L. Mayer, ‘Policy compliance recommendations for international shipbreaking treaties for Bangladesh’ (2016) 3 Marine Policy 122, <<https://doi.org/10.1016/j.marpol.2016.07.012>>.

²⁴ Mehedi Hasan, ‘Ship recycling industry and legal instruments in Bangladesh’, (*Dhaka Tribune*, June 30, 2021), <<https://archive.dhakatribune.com/business/2021/06/30/op-ed-ship-recycling-industry-and-legal-instruments-in-bangladesh>>.

²⁵ Convention on the International Maritime Organization (adopted 6 March 1948, entered into force 17 March 1958) 289 UNTS 3 (IMO Convention).

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- e. To create an information exchanging environment among different member states.

Under Article 15(j), an assembly is established for the first purpose as an advisory body to the member states to ensure marine safety and reduce pollution.²⁶ Similarly, Article 37 establishes the 'Marine Environment Protection Committee' to ensure marine safety and advise necessary policies to implement them.²⁷ IMO has adopted several guidelines (2003)²⁸ following the spirit of article 15(j) of the IMO convention. Guideline 4 identifies hazardous substances in ships, categorizing them into 'should be' and 'may' and suggests reducing harmful substances to protect marine safety and human health. Guideline 5 recommends creating a 'green passport' for ship recycling, detailing ship construction, operation life, owners, design, and equipment changes. Guideline 6 encourages construction with less hazardous substances as well as identification and minimization of such substances during recycling. Guideline 7.3 aims to reduce waste during the ship's operating life. Finally, Guideline 8 stresses compliance with international and national laws during ship breaking and recycling.

However, these guidelines are advisory and have no binding force. Moreover, they do not comply with the basic principles of environmental law. The guidelines violate the *polluter pays principle*,²⁹ which requires pollution costs to be paid by the person responsible. They do not assign responsibility to shipbuilding countries, placing the responsibility of handling hazardous substances on ship recycling workers instead. The guidelines also do not follow *the principle of harm prevention*,³⁰ which aims to reduce and regulate harmful substances' transboundary movements.³¹ The International Court of Justice, in the *Corfu Channel*³² case, has obligated states to prevent harm from the transportation of dangerous fumes or substances, but as we see from guidelines 6 and 7, the guidelines focus more on reducing and minimizing damage from harmful substances rather than prevention of such damage. The International Maritime Organization (IMO) guidelines have been criticized for compromising the *principle of common but differentiated responsibility*,³³ which advocates for the equitable application of international environmental laws in developing countries by imposing fewer responsibilities on them. These guidelines have burdened end-of-life ship-

²⁶ Ibid.

²⁷ Ibid.

²⁸ IMO Guidelines on Ship Recycling (adopted 5 December 2003) A 23/Res.962 <[https://wwwcdn.imo.org/localresources/en/KnowledgeCentre/IndexofIMOResolutions/AssemblyDocuments/A.962\(23\).pdf](https://wwwcdn.imo.org/localresources/en/KnowledgeCentre/IndexofIMOResolutions/AssemblyDocuments/A.962(23).pdf)>.

²⁹ LSE, 'What is the polluter pays principle?' (*The London School of Economics and Political Science*, May 11, 2018) <<https://www.lse.ac.uk/granthaminstitute/explainers/what-is-the-polluter-pays-principle/>>.

³⁰ Max Valverde Soto, 'General Principles of International Environmental Law' (1996) 3 ILSA Journal of Int'l & Comparative Law 193-199.

³¹ Selen Özkan, Principles of International Environmental Law and Effects of Electric Vehicles (*Mondaq*, 30th July, 2020) <<https://t.ly/ytuC>>.

³² *The Corfu Channel Case, (United Kingdom v. Albania)* [1949] ICJ Rep 4 6.

³³ Soto (n 30), 203.

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importing countries with ineffective and inequitable recycling rules. They have not heeded the *principle of intergenerational equity*,³⁴ which requires the conservation of nature and resources for future generations, as these guidelines provide no such rule for the conservation of nature during shipbreaking.

4.1.2 MARPOL Convention 1973

The International Convention for the Prevention of Pollution from Ship 1973 is the main Convention that deals with identifying marine pollution and ways of preventing it. The Convention has demarcated two significant causes of marine pollution, i.e., a) operational b) accidental.³⁵ The Convention introduced two protocols and four annexes.³⁶ Annex I banned single-hull oil tankers to prevent oil pollution. It asked the states to introduce double hull oil tankers. International forums took many ships away from the sea for dumping, which was dismantled later in the ship-breaking countries, including Bangladesh.

Annex II of the Convention regulates pollution by noxious liquid substances, prescribing facilities for discharging pollutants in bulls within 12 miles of the nearest land.³⁷ Annex III deals with harmful substances carried by the ships in packaged form. Annex IV aspires to prevent marine pollution from sea sewage, limiting the permissible release limit to 12 nautical miles from the nearest land. Annex V directs to prevent pollution from ships by different sorts of garbage, prescribing procedures for such discharge and strictly bans the discharge of plastics by ships in the sea. Lastly, Annex VI prohibits deliberate emissions of ozone-depleting substances and sets limits for Sulphur and Nitrogen Oxide emissions from ships' exhausts.³⁸

These annexes, however, missed the fact of the prevention of pollution during the shipbreaking or recycling process. Of the two purposes of the Convention, shipbreaking and recycling come under operational purposes. However, the Convention does not focus on 'end-of-life' ships. Prevention requires stringent actions. Reducing or minimizing the area limit for discharge doesn't serve the purpose. Such limits will strongly harm both marine and coastal ecosystems and biodiversity. Overall, the MARPOL convention was an important way for the international community to reduce oil pollution, air pollution, and water pollution through hazardous substances and greenhouse gases, but it does not directly address pollution from ship breaking or recycling.

³⁴ Ibid, 206.

³⁵ International Convention for the Prevention of Pollution from Ships (adopted and entered into force 2 October 1983) 1340 UNTS 61 (MARPOL Convention), <[https://www.imo.org/en/About/Conventions/Pages/International-Convention-for-the-Prevention-of-Pollution-from-Ships-\(MARPOL\).aspx](https://www.imo.org/en/About/Conventions/Pages/International-Convention-for-the-Prevention-of-Pollution-from-Ships-(MARPOL).aspx)>.

³⁶ Ibid.

³⁷ Ibid.

³⁸ Ibid.

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4.1.3 *The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal 1989*

The Basel Convention aims to promote “environmentally sound management” (ESM) of hazardous wastes by restricting transboundary movement of hazardous substances and creating disposal facilities in the ship's country.³⁹ It was adopted through United Nations Environmental Programme negotiations⁴⁰ and aims to prevent unnecessary harm to human health and the environment by movement and disposal of hazardous wastes. The main object of the Convention is to restrict transboundary movement of hazardous waste by creating disposal facilities in the ship's own country. The Convention also establishes strict rules for exporting ships for recycling, ensuring they do not contain hazardous waste. Additionally, it allows ship importing states to ban the import of ships with hazardous states in their territory.

The Convention states that an exporting state must inform the importing state before exporting a ship containing hazardous substances. This requires prior written consent for transboundary movements of hazardous wastes or ships under Article 6. Article 4(2)(b) of the Convention prohibits the import or export of ships without ‘environmentally sound management of hazardous substances. And Article 4(2)(d) prohibits such export to developing countries which prohibit such import. The obligation under this article lies with ship importing or developing countries. Initially, importing countries must demonstrate environmentally sound management mechanisms for the hazardous waste to be imported.⁴¹ After assessing the preparedness of the management, exporting countries can export the ships.⁴² Direct right of prohibition is bestowed to the ship-owner or exporting countries. However, the Convention has no provision for importing countries to directly prohibit ship export due to the absence of legislation in exporting countries. This makes the Convention seem unequal and biased towards developed countries. Article 4(1)(a) of the Convention outlines the importance of prior information and consent for the importation of ships for shipbreaking. This consent is required for the handling and recycling of these wastes to minimize environmental and human health harm. However, there is a risk of misrepresenting this information, as the ‘information’ here is all about the amount, volume, and handling process of hazardous waste, allowing developed countries to exploit developing countries. The provision strongly implies the prohibition of the export of hazardous substances when

³⁹ Developing guidelines for environmentally sound management (*Basel Convention*), <<http://www.basel.int/Implementation/CountryLedInitiative/EnvironmentallySoundManagement/Overview/tabid/3615/Default.aspx>>.

⁴⁰ History of the negotiations of the Basel Convention (*Basel Convention*), <<http://www.basel.int/TheConvention/Overview/History/Overview/tabid/3405/Default.aspx>>.

⁴¹ Basel Convention On The Control Of Transboundary Movements Of Hazardous Wastes And Their Disposal 1989 (adopted 22 March 1989, entered into force 5 May 1992) 1673 U.N.T.S. 126 (*Basel Convention*), Article 4(2)(b, c).

⁴² *Ibid*, Article 4(2)(d).

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such prohibition is present in national legislation⁴³, which is not in place in Bangladesh.

Ship Breaking and Recycling Rules 2011 provides for the assessment of hazardous wastes and determining disposal methods by the Department of Environment.⁴⁴ Ship exporting countries and Bangladesh exploit the gaps in these rules, breaking and recycling ships with hazardous substances in an environmentally hostile manner. Furthermore, the Convention does not consider ships with high PCBs, asbestos, and toxic metals – which are extremely harmful to human health and the environment – as wastes in and of themselves.⁴⁵ To meet the gaps, the 7th Conference of Parties (CoP)⁴⁶ under Basel Convention asked to designate such ships as wastes.⁴⁷ Lastly, the Convention has policy gaps on environmentally sound disposals and adequate verification by importing or exporting states. The Basel Ban Amendment aimed to equalize treatment for developing countries⁴⁸ in the ship-breaking industry by prohibiting the export of hazardous substances from OECD countries to non-OECD countries, specifically from developed countries to developing countries.⁴⁹ However, the amendment has not been implemented properly in the absence of ratification, and it does not provide punishment or sanctions for illegal trafficking of hazardous substances. Instead, it merely encourages cooperation in disposing of hazardous substances in convenient states.

Effective implementation of the Convention requires strong state and international sanctions. To meet this end, Basel Convention member states adopted a protocol titled 'Protocol on Liability and Compensation for Damage Resulting from Transboundary Movements in Hazardous Wastes and their Disposal 1999'.⁵⁰ The protocol prescribes damages for loss of life, personal injury, loss of property, harm to the environment, and loss of income from the coastal environment.⁵¹ This protocol's implementation would make ship exporting and importing countries more accountable to protect the environment and human health. For a sustainable ship-breaking

⁴³ Ibid, Article 4(7)(a).

⁴⁴ Rule 8, See at:

<[https://moind.portal.gov.bd/sites/default/files/files/moind.portal.gov.bd/legislative_information/52017f63_a708_40d_2_a95a_529a01e9bb7c/SBSBR2011.compressed%20\(1\).pdf](https://moind.portal.gov.bd/sites/default/files/files/moind.portal.gov.bd/legislative_information/52017f63_a708_40d_2_a95a_529a01e9bb7c/SBSBR2011.compressed%20(1).pdf)> [Vaiya, eita kon rule bujhtesi na, please ektu dekhiyen].

⁴⁵ Environmental Pollution (*Ship Breaking in Bangladesh*), <<https://shipbreakingbd.info/environmental-pollution>>.

⁴⁶ Basel Convention formed the CoP under Article 15. The responsibility of running it was bestowed on United Nations Environmental Programme (UNEP)

⁴⁷ Legal Aspects (*Basel Convention*), <<http://www.basel.int/Implementation/ShipDismantling/LegalAspects/Overview/tabid/2766/Default.aspx>>.

⁴⁸ Alam & Faruque (n 6), 52.

⁴⁹ Ban Amendment gains entry into force (*Centre for Science and Environment*, 2019), <<https://www.cseindia.org/ban-amendment-gains-entry-into-force-3662>>.

⁵⁰ Basel Protocol on Liability and Compensation (adopted 10 December 1999), <<http://www.basel.int/TheConvention/Overview/LiabilityProtocol/tabid/2399/Default.aspx>>.

⁵¹ Ibid

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industry, comprehensive implementation of the Basel Convention and protocol is inevitable.

4.1.4 The Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009

The Hong Kong Convention, adopted in 2009, introduced a comprehensive ship recycling mechanism. It requires states to design, construct, operate, and prepare safe ship recycling or breaking in their states. The Convention is a pioneer in ship recycling, requiring states to maintain an inventory of hazardous materials and ensure environmental and health safety in recycling states through the smooth withdrawal of ships from maritime transport. It applies to ships above 500 GT and commercial ships,⁵² with both operating and recycling states under its jurisdiction. Certification of ships is mandatory for operation or recycling,⁵³ and states must authorize a ship for recycling after proper certification.⁵⁴

Article 8 of the Convention directs to pursue inspection of the ships to be sent for recycling. After inspection, ships shall be provided with an 'International Recycling Certificate.' The inspection shall examine whether the ship has a proper recycling plan. In terms of violation of any provision of the Convention, states shall cooperate to detect them and sanction the state violating the Convention's regulations by detaining, dismissing, or excluding the ship from different ports.⁵⁵ The Convention also gives due importance to shipbreaking workers' health and safety. The Convention has some significant flaws, including not establishing standards for safe and environmentally sound ship recycling, not establishing a compulsory method for environmentally sound recycling, and not prohibiting the beaching of end-of-life ships for recycling. This lack of a proper waste management mechanism, combined with the exemption of warships, naval auxiliaries, and government services, raises questions about the Convention's marine protection mechanism. Overall, the Convention doesn't have a proper waste management mechanism as it doesn't force the ship exporting developed countries to decontaminate ships before export.⁵⁶ The Convention has potential but is a compact guideline prescribing ship management from cradle to grave. The Convention has 22 signatories – including Bangladesh⁵⁷ – representing 45.81% of the gross tonnage of the

⁵² Article 3

⁵³ Article 5

⁵⁴ Article 6

⁵⁵ Article 9 & 10

⁵⁶ Chang, Y. C. and others, 'Ship recycling and marine pollution' (2010) 60(9) Marine Pollution Bulletin 1390-1396, <<https://doi.org/10.1016/j.marpolbul.2010.05.021>>.

⁵⁷ 'Bangladesh and Liberia trigger entry into force of Convention for the Safe and Environmentally Sound Recycling of Ships' (*International Maritime Organization*, 2023), <<https://www.imo.org/en/MediaCentre/PressBriefings/pages/Hong-Kong-Convention-set-to-enter-into-force-.aspx>>.

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world's merchant shipping.⁵⁸ It will come into force in 2025⁵⁹ and the States are expected to adopt the Convention in their national statutes and strive for 'green ship recycling' in the future.

4.1.5 United Nations Convention on the Law of the Sea 1982

This Convention was adopted to take necessary measures to protect the marine environment through collective efforts and cooperation of states. States are under strict obligation to adopt measures for protecting the environment.⁶⁰ The Convention has advised states to adopt preventive measures to reduce pollution in order to protect the marine environment from harmful effects of drilling, dredging, disposal of waste, excavation, construction, operations or maintenance activities, pipelines, etc.⁶¹ Furthermore, the Convention focuses on the conservation of marine flora and fauna⁶² and protection of human life associated with the marine environment.⁶³ It advises proper caution for marine operations. Actions harming the marine environment shall be erected, removed, or emplaced to better the marine environment.⁶⁴

Under Article 194(3), States shall reduce prevent and control marine pollution through restraining –

- a. the release of toxic or harmful substances (persistent) from land-based sources,
- b. the pollution from vessels in operation, manning, equipment, design, or construction,
- c. the pollution from the installation of devices to explore or exploit natural resources of the seabed or subsoil, and
- d. the pollution from the installation of devices and their operation in preventing accidents, ensuring safety and dealing with emergencies.

None of these measures shall harm the marine environment and life.⁶⁵ Complying with the Basel Convention, this Convention prohibits the transfer of hazardous wastes from one place to another.⁶⁶ Article 207 of the Convention prohibits pollution from land-based sources to protect the marine environment, which may include shipbreaking and recycling. Besides, the Convention calls for the reduction, prevention and control of pollution from activities around the sea through regulations and legislation to establish a control mechanism for such pollution in different countries.⁶⁷

⁵⁸ 'Recycling of ships and the Hong Kong Convention' (*International Maritime Organization*, 2023) See at: <<https://www.imo.org/en/MediaCentre/HotTopics/Pages/Recycling-of-ships-and-Hong-Kong-Convention.aspx>>.

⁵⁹ Ibid.

⁶⁰ Article 192

⁶¹ Article 145(a)

⁶² Article 145(b)

⁶³ Article 146

⁶⁴ Article 147

⁶⁵ Article 194(5)

⁶⁶ Article 195

⁶⁷ Article 209

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The Convention aims to protect the marine environment from pollution and minimize threats to coastal environments caused by vessels by establishing international rules and standards.⁶⁸ However, it has opened the door to the exploitation of developing countries by the shipbreaking industry by enabling them to an equitable international economic order and justifying the expansion of shipbreaking. It benefits states financially but destroys the marine environment. The Convention lacks comprehensive measures for marine protection, focusing more on state regulation in determining their territory, and fails to address the full extent of the issue.

4.1.6 The Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade 1998

This Convention focused on 'prior informed consent procedure to export hazardous waste to a country,⁶⁹ emphasizing shared responsibility and cooperative efforts to safeguard human health and the environment from imminent harm of pesticides and toxic chemicals.⁷⁰ This Convention provides a decisive measure like 'shared responsibility for handling hazardous chemicals,⁷¹ which might help ship importing developing countries in terms of shipbreaking. Shared responsibility will protect the coastal environment of ship-breaking countries from unnecessary harm. This Convention categorized chemicals to protect the environment and human health. The specific inclusion of the shipbreaking industry would have increased the comprehensiveness of the Convention. Overall, inference from the Convention advises importing or exporting ships containing chemicals more carefully to reduce marine pollution.

4.1.7 Stockholm Convention on Persistent Organic Pollutants (POPs) 2001

Persistent Organic Pollutants (POPs) pose a significant environmental threat, particularly in ships, where they can directly threaten coastal micro-organisms. POPs are easily transportable and rarely degradable, making them a concern for developing countries. The Convention, adopted in 2001 and amended in 2009,⁷² underscores the impact of POPs on women and future generations, emphasizing the need for sustainable practices. The objective of the Convention is to protect human health and the environment from persistent organic pollutants (POPs)⁷³ by implementing legal and administrative measures to control the intentional production and use of chemicals.⁷⁴ It further instructs the reduction of unintentional use of

⁶⁸ Article 211

⁶⁹ Rotterdam Convention 1998 (adopted on 10 September 1998, entered into force on 24 February 2004) 2244 UNTS 337.

⁷⁰ Ibid.

⁷¹ Ibid.

⁷² Stockholm Convention on Persistent Organic Pollutants (POPs) (adopted 22 May 2001, entered into force 17 May 2004) 2256 UNTS 2256.

⁷³ Article 1

⁷⁴ Article 3

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chemicals.⁷⁵ It lists certain chemicals as persistent organic pollutants in annexes A, B, and C.⁷⁶ Annex A suggests eliminating Hexachlorobenzene (HCBs) and Polychlorinated biphenyls (PCBs), while part 2(a)(i) requests a 10% reduction in PCBs in different equipment and part 2(a)(ii) requires a 0.005 PCB removal by 2025. Annex C advises reducing unintentional production of HCBs and PCBs, as they can grow from anthropogenic sources. However, Bangladesh's ships are high in HCBs and PCBs, causing harm to the human health and coastal environment.

4.1.8 *The International Convention on the Control of Harmful Anti-Fouling Systems on Ships, 2001*

The Convention, adopted in 2001 and enacted in 2008, prohibits the use of antifouling paints on ships to prevent irreparable harm.⁷⁷ Antifouling paints protect hulls from algae and molluscs, allowing ships to maintain reasonable fuel consumption and speed. However, they pose significant risks to barnacles and other marine life by killing them. Tributyltin (TBT) is considered one of the most harmful organotin used in antifouling paints, being harmful to the wider marine habitat.⁷⁸ The Convention aims to prevent and restrict the use, application, re-application, and installation of antifouling paints containing organotin in ships.⁷⁹

Antifouling paints must be applied, handled and disposed of protectively to protect human health and the environment.⁸⁰ State party officers inspect ships for antifouling paints⁸¹ and ensure they have an 'Anti Fouling System Certificate' under the Convention⁸² to control the use of antifouling paints. If a ship violates the Convention, officers may dismiss, detain, or exclude it from its port.⁸³ The Convention encourages strict sanctions on violating ships and states.⁸⁴ However, there are no comprehensive guidelines for ship inspections, and the inspection mechanism may vary across countries, diluting the inspection's credibility. Additionally, the Convention does not specify proper sanctions for violating the Convention. Strict sanction is only advised, not mandated. Overall, the Convention has adequate provisions that may be reconsidered for unanimous adoption and comprehensive implementation worldwide.

⁷⁵ Article 6

⁷⁶ Article 8

⁷⁷ International Convention on the Control of Harmful Anti-fouling Systems on Ships (adopted 5 October 2001, entered into force on 17 September 2008) [2008] ATS 15.

⁷⁸ 'Anti-Fouling' (*European Maritime Safety Agency*), <[https://www.emsa.europa.eu/protecting-the-marine-environment/anti-fouling.html#:~:text=Anti%2Dfouling%20paints%20may%20contain,%2C%20contained%20tributyltin%20\(TBT\)>](https://www.emsa.europa.eu/protecting-the-marine-environment/anti-fouling.html#:~:text=Anti%2Dfouling%20paints%20may%20contain,%2C%20contained%20tributyltin%20(TBT)>)>.

⁷⁹ Article 4

⁸⁰ Article 5

⁸¹ Article 11(1)

⁸² Article 11(1)(a)

⁸³ Article 11(1)(3)

⁸⁴ Article 12

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4.2 National Legislation Regarding Shipbreaking

4.2.1 *The Ship Reprocessing Act 2018*

The Act regulates the shipbreaking industry by declaring specific zones for shipbreaking and recycling⁸⁵, allowing individuals or institutions to install yards in these zones with prior government approval.⁸⁶ Section 6 requires a 'No Objection Certificate' for ship reprocessing in a shipyard. Ship Reprocessing Board shall adopt guidelines and follow international conventions regarding ship breaking. The Act was enacted to fulfill the objectives of The Hong Kong Convention. The government was required to accordingly take action within five years to decipher the objectives of the Hong Kong Convention, ensuring full compliance by 2023.⁸⁷ A Ship Reprocessing Board is formed under Section 8 which would simultaneously supervise shipbreaking and keep the 'Ship Breaking and Recycling Rules 2011' active under Section 44 of the Act. Both boards have analogous duties, powers, and jurisdiction in dealing with the ship-breaking industry.⁸⁸

Section 17(1) of the Act has discussed protecting ecological balance and the environment of an area surrounded by ship-breaking yards. The shipbreaking and recycling process exhales a lot of hazardous wastes into the soil, water, and air of the coastal zone. This section aspires to set control and monitoring at such disposal of wastes.⁸⁹ However, the Act doesn't discuss the credentials of safety and security of the environment. Treatment Storage and Disposal Facility (TSDF) was supposed to be introduced within three years after the Act in Bangladesh's shipbreaking and recycling yards.⁹⁰ But most of the ship breaking yards in Chittagong don't have such a facility to make a ship hazardous substance-free. Nor does it include any safety mechanism for the safety of the workers working in such a hazardous environment. Overall, this Act lacks comprehensiveness in environmental protection and needs further developments and comprehensive amendments in order to change the spectrum of shipbreaking recycling regulation in the country.

4.2.2 *The Shipbreaking and Recycling Rules, 2011*

The Shipbreaking and Recycling Rules established the Ship Breaking and Ship Recycling Board (SBSRB) to provide a one-stop service for providing NOC and facilitating a Letter of Credit by examining hazardous material inventory.⁹¹ The board issues 'Gas Free for Entry' and 'Gas Free for Hot Work' certificates,⁹² and requires shipyard owners to submit 'Ship Recycling Plan' and 'Ship Recycling Facility Plan' for permission to cut and

⁸⁵ Section 4

⁸⁶ Section 5

⁸⁷ Section 7

⁸⁸ Section 11

⁸⁹ Section 17(2)

⁹⁰ Section 20

⁹¹ Rule 3

⁹² Rule 3(4)

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demolish ships.⁹³ An NOC from SBSRB is required for importing ships for breaking and recycling,⁹⁴ and prior information must be given to the Maritime Rescue Coordination Centre before entering Bangladesh Maritime Zones.⁹⁵ SBSRB and the Department of Environment, Department of Explosives, and National Board of Revenue shall examine the ships' IMO no, inventory of hazardous chemicals and gases, and other related documents before permitting ship recycling.⁹⁶ Rule 9 advises acquiring specific certificates before beaching ships, given after inspection of 'gas-free and fit for hot work,' 'safe for man entry' and 'safe for hot work.' The Ship Recycling Facility Plan describes hazardous waste treatment, sewerage, and disposal facilities; the Ship Recycling Plan describes operational measures, and handling hazardous materials with protective equipment is also a prerequisite for ship recycling.⁹⁷ Rule 17 directs the appointment of skilled workers in the shipyards to deal with hazardous substances and other technical tasks while forbidding unskilled workers.

The ship recycling process must adhere to the 'The Environment Conservation Act 1995' to preserve the environment and ecosystem.⁹⁸ Yard owners are required to maintain neatness and cleanliness by designing a Negative Pressure Chamber for asbestos-containing materials.⁹⁹ Rule 21 mandates solid waste management in shipbreaking yards, putting the responsibility hazardous waste in an environmentally sound manner on the owner. However, this rule is damaging as it lacks strict monitoring and the owners essentially have free reign. Solid waste management without direct participation from the SBSRB and DoE is not desirable. Compliance with guidelines is essential for obtaining an 'environment clearance certificate'. These guidelines recommend a thorough examination of ships and gas-free operations, cleaning bunker oils from pre-entry into beaches to cutting and dismantling. SBSRB is responsible for examining and verifying compliances and providing NOCs. However, these rules are advisory and insufficient for a sustainable ship recycling industry. The 2011 rules are only guidelines, not statutes, but could be seen as a positive step towards a robust ship recycling legislation regime.

4.2.3 *Environment Conservation Act 1995*

Environment Conservation Act 1995 was adopted to protect the environment, ensure environmental development, and control environmental pollution. Hence it recognizes of 'ecologically critical area' and recommends necessary steps to safeguard such areas from pollution.¹⁰⁰ Shipbreaking yards are not critical areas, but their uncontrolled expansion

⁹³ Rule 3(5)

⁹⁴ Rule 4

⁹⁵ Rule 5

⁹⁶ Rule 7(1)

⁹⁷ Rule 15 & 16

⁹⁸ Rule 8

⁹⁹ Ibid.

¹⁰⁰ Section 5

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might leave coastal areas as 'ecologically critical.' The Act requires yard owners, importers, and yard users to protect the environment from hazardous waste and minimize health risks during shipbreaking and recycling.¹⁰¹ The government focuses on passive protection, passing the responsibility to owners, importers, or yard users' courts. Yard owners require an 'Environment Clearance Certificate' from the Department of Environment to establish a shipyard.¹⁰² The Director Generally typically provides a certificate after an Environmental Impact Assessment (EIA), but there are no established standards to obtain the certificate or environmental experts to monitor EIA reports. The Act prohibits the establishment of any industry without prior approval from the Department of Environment (DoE). Hence shipbreaking yards – being qualified as an industry – cannot be established without the prior approval of the DoE. However, in Chittagong, many ship-breaking yards are operating without DoE approval.¹⁰³ The person in charge of such yards should be held accountable for pollution.¹⁰⁴ But it is hard to do so with such illegal yards which are not on record. The government must adopt stricter guidelines to protect the environment and ecosystem from hazardous substance pollution under Section 13. The ECA 1995 deals with post-harm situations rather than prevention,¹⁰⁵ violating the *principle of harm prevention* in international environmental law, which requires states to adopt regulations to prevent pollution and related hazards.

4.2.4 Environment Conservation Rules 2023

These guidelines have repealed and replaced the Environment Conservation Rules 2023 with more and expanded definitions and procedures for industry units to get Location and Environmental Clearance Certificates. Industrial units or projects are divided into four categories based on the level of environmental pollution and impact – green, yellow, orange, and red.¹⁰⁶ The shipbreaking industry now falls under the red category,¹⁰⁷ having a severe impact on the environment and human health, which must be reduced to maintain a healthy environment.¹⁰⁸ Shipbreaking yards in Bangladesh are mostly in forest areas or human habitats. Many of them are established through deforestation, severely damaging the biodiversity of such areas. Establishing a shipbreaking yard would require both a location

¹⁰¹ Section 6(4)

¹⁰² Section 12

¹⁰³ Anwar Hussain, 'Illegal shipbuilding activities continue at Chittagong shipbreaking yards' (*Dhaka Tribune*, February 16, 2020), <<https://archive.dhakatribune.com/bangladesh/nation/2020/02/16/illegal-shipbuilding-activities-continue-at-chittagong-ship-breaking-yards>>.

¹⁰⁴ Section 9

¹⁰⁵ Mohammad Faysal Saleh, 'A Critical Appraisal of Bangladesh Environment Conservation Act, 1995 and Rules, 1997', (*Bangladesh Law Digest*, September 03, 2015) <<https://bdlawdigest.org/bangladesh-environment-conservation-act-1995.html>>.

¹⁰⁶ Rule 5

¹⁰⁷ Schedule 1

¹⁰⁸ Rule 6

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and an environmental clearance certificate, without which an industrial unit cannot be established and the government would not provide gas, electricity, water or any other utilities nor would any projects be allowed to begin.¹⁰⁹ Shipbreaking yards, as red category industries, must first obtain a Location Clearance Certificate from the DoE, after an Environment Impact Assessment which should be done by an Enlisted Environmental Consultant¹¹⁰ after examining the environmental impact and taking public opinion following the provided procedures.¹¹¹ Only after the EIA report has been approved and the yard has been given a Location Clearance Certificate can the yard obtain an Environmental Clearance Certificate. Not only that, shipbreaking yards specifically would have to obtain clearance certificates before dismantling each ship.¹¹² This implies significant delay due to the extra round of permission which could delay the shipbreaking process for upto two and a half months.¹¹³ Though this creates challenges for the shipbreaking industry, it is an important and necessary change from the previous status of category Orange-B,¹¹⁴ which only required a certificate for establishing a yard, but not for processing each ship. These new changes in the rules have created a more robust and comprehensive policy in regard to monitoring and reducing the harmful environmental impact of shipbreaking yards. Proper implementation of these rules would help reduce the environmental impact of the shipbreaking industry significantly.

5. PRESENT CONDITIONS OF SHIP BREAKING IN BANGLADESH

Shipbreaking is hugely prevalent in the Northern part of Chittagong. Sitakund is the epicentre of this industry.¹¹⁵ Though this industry existed since 1960 when 'M.D. Alpine' stranded in Sitakund's coastal area, commercially, it started in 1974 after dismantling a war-torn Pakistani ship.¹¹⁶ After almost thirty years of creating a significant space in the economy, Bangladesh has recognized it as an industry under the Labour Act 2006.¹¹⁷ The Act is a common Act for Bangladesh regarding all labour-related activities. Hence it is not catered to the shipbreaking industry. As a result, it created a lack of comprehensiveness and discrepancy in the industry.

Apart from that, different specialists have a vital concern for the environment. Hence the industry needed a compact stature to become sustainable. In these 150 ship-breaking yards of Bangladesh, 90-100 remain

¹⁰⁹ Rule 2(5)

¹¹⁰ Rules 14-18

¹¹¹ Rule 19

¹¹² Nazimudding Shyamol, 'Shipbreaking yards now get red environmental status', (*The Financial Express*, May 10, 2023), <<https://thefinancialexpress.com.bd/trade/shipbreaking-yards-now-get-red-environmental-status>>.

¹¹³ Ibid.

¹¹⁴ Ibid.

¹¹⁵ Jewel Das and Muhammed Ali Shahin, 'Ship Breaking and its Future in Bangladesh' (2019) 6(2) *Journal of Ocean and Coastal Economics* 1-18, <<https://doi.org/10.15351/2373-8456.1110>>.

¹¹⁶ Ibid.

¹¹⁷ Alam and Faruque (n 6).

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seasonally active, and 50-60 are active throughout the year.¹¹⁸ Bangladesh is a top ship-breaking country, and it also meets Bangladesh's steel demand. It produces more steel than it is capable of importing. Bangladesh topped the global ship-breaking industry in 2021 by dismantling 197 ships and producing 69.64 lakh metals by scrapping 34% of ships across the world.¹¹⁹ United Nations Conference on Trade and Development (UNCTAD) reported that in 2018 and 2019, Bangladesh scrapped 47 and 55% of end-of-life ships, respectively.¹²⁰ 2016 was the peak of shipbreaking with 227 ships being imported.¹²¹ These numbers have seen a significant decrease in 2023 with only 144 ships being imported for recycling.¹²² Bangladesh has become the cheapest dumping zone for dead ships without any doubt.¹²³ To be at the top of the industry, people of coastal zones, the coast itself, and the workers have to pay a high price. The soil and sediments of the coastal zones have become contaminated with oil residues, persistent organic pollutants, and other pollutants.¹²⁴ These pollutants are strongly found in the fish adjacent to the shipbreaking yards.¹²⁵ The air of coastal zones became highly intoxicated with Asbestos and other harmful chemicals. At the same time, the soil and sediments became intoxicated with different chemicals, paints, and crude oil.

6. CONDITION OF COASTAL ENVIRONMENT IN SHIP-BREAKING YARDS AND RECYCLING ZONES

Shipbreaking yards of Bangladesh scrap ships in open coastal areas. Asbestos, anti-fouling materials, Waste substance and article containing, Polychlorinated Biphenyls, Poly Brominated Biphenyls, Poly Brominated Diphenyl Ethers, Poly Chlorinated Naphthalene, Ozone Depleting

¹¹⁸ 'Overview of Ship Breaking in Bangladesh' (*Ship Breaking in Bangladesh*), <<https://shipbreakingbd.info/overview-of-ship-breaking/>>.

¹¹⁹ TBS Report, 'Bangladesh remains on top in shipbreaking' (*The Business Standard*, October 22, 2021), <<https://www.tbsnews.net/dropped/industry/bangladesh-remains-top-shipbreaking-319333>>.

¹²⁰ Mohsin Bhuiyan, 'Bangladesh's share in ship recycling further increases' (*The Business Standard*, November 14, 2020), <<https://www.tbsnews.net/economy/industry/bangladeshs-share-ship-recycling-further-increases-157699#:~:text=In%202019%2C%20Bangladesh%20captured%20the,47%25%20of%20the%20globe's%20ships>>.

¹²¹ Nazimuddin Shyamol, 'Ship-breaking industry comes to near standstill.' (*The Financial Express*, January 15, 2024), <<https://today.thefinancialexpress.com.bd/stock-corporate/ship-breaking-industry-comes-to-near-standstill-1705257756#:~:text=The%20industry%20saw%20a%20substantial,weighing%20880%2C558%20tonnes%20were%20imported>>.

¹²² Ibid.

¹²³ Monira Munni, 'Bangladesh top dumping ground for ships' (*The Financial Express*, February 7, 2020), <<https://thefinancialexpress.com.bd/trade/bangladesh-top-dumping-ground-for-ships-1581051205>>.

¹²⁴ Vardar, E. and Harjono, M., 'Ships for Scrap V - Steel and toxic wastes for Asia' (2002) Greenpeace Report on Environmental, Health and Safety Conditions in Aliaga Shipbreaking Yards, Izmir, Turkey.

¹²⁵ Kannan, K. and others, 'Butyltins in muscle and liver of fish collected from certain Asian and Oceanian countries,' (1995) 90(3) *Environmental Pollution* 279-290, <[https://doi.org/10.1016/0269-7491\(95\)00028-p](https://doi.org/10.1016/0269-7491(95)00028-p)>.

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Substances, Cadmium, Chromium, Lead, Mercury, Pharmaceuticals wastes, Bilge water, Compressed gas cylinders, Electrical Equipment, Fluorescent Tubes, Lead Acid Batteries, Oils, Waste oil, and Sludge are found in the shipbreaking yards of Bangladesh.¹²⁶ Apart from that, carbon, iron oxide, and organotin emit from the anti-fouling paint of ships.¹²⁷ Organotin contains Tributyltin.¹²⁸ The Rotterdam Convention requires informed consent before importing ships containing Tributyltin paints,¹²⁹ which was banned by the International Maritime Organization in 2003.¹³⁰ The Basel Convention has also designated these chemicals as hazardous. Dismantled ships are collected and burned to collect metal and PVC cables, causing air pollution through polyvinyl chloride and asbestos emissions.¹³¹ Workers anchor ships at low tide, causing anti-fouling paints, metal fragments, and rust to drop into seawater, harming microorganisms by blending metal into seashore soil. This process also transforms seashore soil into metallic soil due to increased petroleum hydrocarbons and bacterial contaminants spreading from the dismantled plates.¹³²

Almost all the ships contain these harmful chemicals used for different purposes. Labourers use some of them for ship cutting and recycling. Chittagong's shipbreaking yards dismantled 22 percent of total ships scrapped worldwide in 2014.¹³³ In the same year, researchers found several Persistent Organic Pollutants or Carcinogenic pollution in the air of Chittagong.¹³⁴ World Health Organization has confirmed¹³⁵ the presence of excessive amounts of PAHs, Carcinogen, and fumes of Asbestos, making the workers vulnerable to lung cancer, mesothelioma, other respiratory diseases, etc. This is concerning for the people residing in northern Chittagong because floatable materials like grease balls and oil films with high BOD are found in

¹²⁶ Zakaria, N. M. G. and others, 'Underlying problems of ship recycling industries in Bangladesh and way forward' (2012) 9 Journal of Naval Architecture and Marine Engineering 91-102, <<https://doi.org/10.3329/jname.v9i2.10515>>.

¹²⁷ Readman, J. W., 'Development, Occurrence and Regulation of Antifouling Paint Biocides: Historical Review and Future Trends,' in, Ioannis K. Konstantinou (ed), *Antifouling Paint Biocides* (Springer, 2006).

¹²⁸ Blanca Antizar-Ladislao, 'Environmental levels, toxicity and human exposure to tributyltin (TBT)-contaminated marine environment. A review' (2008) 34(2) Environment International 292-308. <<https://doi.org/10.1016/j.envint.2007.09.005>>.

¹²⁹ Sousa, A.C.A. and Pastorinho, M. R., 'Volume 5: Contaminants' in, Dominick A. Dellasala and Michael I. Goldstein (eds), *Encyclopedia of the Anthropocene* (Elsevier Inc. 2018).

¹³⁰ The New IMO Treaty to Ban TBT (*Marine Link*, June 6, 2024), <<https://www.marinelink.com/news/treaty-new-imo306303>>.

¹³¹ Joe Thornton, 'Environmental Impacts of Polyvinyl Chloride Building Materials' (Healthy Building Network, 2002), 45.

¹³² Rafiq Islam and MD. M. Maruf Hossain, Effect of ship scrapping activities on the soil and sea environment in the coastal area of Chittagong, Bangladesh', (1986) 17(10) Marine Pollution Bulletin 462-463, <[https://doi.org/10.1016/0025-326X\(86\)90836-2](https://doi.org/10.1016/0025-326X(86)90836-2)>.

¹³³ Science for Environment Policy, Ship recycling: reducing human and environmental impacts (Chittagong ship recycling industry linked to carcinogenic air pollution), June 2016, Issue 55, p. 6

¹³⁴ Ibid.

¹³⁵ Science for Environment Policy, Chittagong ship recycling industry linked to carcinogenic air pollution, June 2016, Issue 55, See at: <https://ec.europa.eu/environment/integration/research/newsalert/pdf/chittagong_ship_recycling_industry_linked_to_carcinogenic_air_pollution_55si1_en.pdf> (accessed February 10, 2024).

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the seawater from north Chittagong,¹³⁶ increasing the level of Polycyclic Aromatic Hydrocarbon (PAHs) in the seawater, which is also detrimental to micro-organisms.¹³⁷ As a result of an unplanned extension of shipbreaking yards, the marine ecosystem is destroyed and marine life. The yards of Chittagong have dismantled over 520 ships since 2020,¹³⁸ which no doubt only exacerbated the degradation of the coastal environment.

The increasing turbidity in seawater due to ammonia, oil spillage, and grease balls has led to shore erosion in coastal areas of Chittagong,¹³⁹ causing biodiversity loss and eradicating marine organisms like plankton and fishes.¹⁴⁰ The Convention on Biological Diversity 1992 aimed to increase sustainability of microorganisms and their ecosystems,¹⁴¹ but Bangladesh has failed to achieve this, particularly in Chittagong. Additionally, Bangladesh has been importing single-hull oil tanker ships for dismantling,¹⁴² which was banned by the MARPOL Convention in 2003 due to its harmful effects on sea microbial communities.¹⁴³ The rapidly growing industry in northern Chittagong is detrimental to public health and the coastal environment. The negative effects on the environment, workers, and habitats will persist. Bangladesh's government could have controlled this issue by introducing a proper statute, but it lacks the will to protect the environment and has chosen the economy over the environment.

7. JUDICIAL DEVELOPMENTS REGARDING SHIP BREAKING AND SHIP RECYCLING INDUSTRY IN BANGLADESH

Bangladesh's Supreme Court has resolved many cases relating to the ship-breaking. In 2003 Bangladesh Environmental Lawyers Association (BELA) filed a writ petition against non-compliance with environmental issues in the shipbreaking yards of Bangladesh.¹⁴⁴ The court ruled that

¹³⁶ Environmental Pollution (*Ship Breaking in Bangladesh*), <<https://shipbreakingbd.info/environmental-pollution/#:~:text=Ship%20scrapping%20activities%20pollute%20the,an%20increase%20in%20PH%20levels>>.

¹³⁷ Md. Shakhaoat Hossain and others, 'Impact of ship-Breaking activities on the coastal environment of Bangladesh and a management system for its sustainability' (2016) 60 Environmental Science & Policy 88-94, <<https://doi.org/10.1016/j.envsci.2016.03.005>>.

¹³⁸ Stéphane Mandard, 'In Bangladesh, old ships continue to be dismantled in disastrous conditions' (*Le Monde*, June 7, 2024) <https://www.lemonde.fr/en/environment/article/2023/09/29/in-bangladesh-old-ships-continue-to-be-dismantled-in-disastrous-conditions_6141359_114.html>.

¹³⁹ Islam and Hossain (n 132), 463.

¹⁴⁰ Md. M. Maruf Hossain and Mohammad Mahmudul Islam, *Ship Breaking Activities and its Impact on the Coastal Zone of Chittagong, Bangladesh: Towards Sustainable Management* (Young Power in Social Action, Chittagong 2006).

¹⁴¹ Article 10, Convention on Biological Diversity 1992 (entered into force on 29 December 1993) 1760 UNTS 69 <<https://www.cbd.int/doc/legal/cbd-en.pdf>>.

¹⁴² Maria Sarraf, 'Ship Breaking And Recycling Industry In Bangladesh And Pakistan' (Report No 58275-SAS, The World Bank, 2010).

¹⁴³ MARPOL Convention, Annex I Regulations for the Prevention of Pollution by Oil <[https://www.imo.org/en/About/Conventions/Pages/International-Convention-for-the-Prevention-of-Pollution-from-Ships-\(MARPOL\).aspx](https://www.imo.org/en/About/Conventions/Pages/International-Convention-for-the-Prevention-of-Pollution-from-Ships-(MARPOL).aspx)>.

¹⁴⁴ *BELA v. Government of Bangladesh and others*, Writ Petition No 2911 of 2003.

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shipyard owners have failed to follow the guidelines of the ECA 1995 and ECR 1997, importing single-hull oil tankers despite their ban in 2003 by IMO, the most hazardous of which was MT Alfaship.¹⁴⁵ Supreme Court of Bangladesh issued a show-cause with the shipping importing authority.¹⁴⁶ Because they didn't get prior permission from appropriate authorities before bringing the ship into the internal water of Bangladesh. In another suit, the Supreme Court of Bangladesh has declared nine directions,¹⁴⁷ citing that the DoE had failed to fulfil the objectives of ECA 1995 and ECR 1997 by not examining ships before giving them permission for dismantling. Also, the Basel Convention is violated by the negligence of the DoE. The court forbade any sort of dismantling of ships without an 'Environment Clearance Certificate (ECC)'. The court injunctioned MT enterprise from importing hazardous ships and advised proper examination and inspection. Bangladesh was also required to ensure end-of-life ships are pre-cleaned and free from asbestos, PCB, and PAH. Lastly, yards without proper ECC were asked to shut down. Moreover, these cases gave stringent focus on protecting the environment and workplace safety. Soil, water, and air in the shipbreaking yards shall be protected to save micro-organisms and the area's ecosystem. In another case, the Supreme Court of Bangladesh has directed the establishment of dedicated zones for shipbreaking in Bangladesh,¹⁴⁸ requesting the government to protect the environment and workers' safety by initiating mobile court. Despite the adoption of the Ship Breaking and Ship Recycling Rules 2011, nearly 42 ship-breaking companies have not adhered to environmental compliances, compromising the environment and workers' safety.¹⁴⁹

In 2016, BELA filed a contempt petition against government officials and the president of the Bangladesh Ship Breakers' Association for violating environmental guidelines and compromising workplace safety.¹⁵⁰ Despite these concerns, the DoE promoted the ship-breaking industry from 'Red Category' to 'Orange-B Category', questioning the credibility of the Ship Reprocessing Act 2018 and Ship Breaking and Ship Recycling Rules 2011, and nine Supreme Court directions on environmental protection and workplace safety in 2008. This error was rectified in the recent amendment of Environment Conservations Rules in 2023. Conservation of the environment and biodiversity is a fundamental principle of state policy under Article 18 of Bangladesh's constitution. Being judicially unenforceable, the Bangladesh government might deny the responsibility for harming the environment. But

¹⁴⁵ Faruque and Alam (n 6).

¹⁴⁶ *BELA vs. Bangladesh*, Writ Petition 3916 of 2006.

¹⁴⁷ *Bangladesh Environmental Lawyers Association (BELA) v Bangladesh* [2008] (Writ Petition No. 7260 HCD).

¹⁴⁸ *Bangladesh Environmental Lawyers Association vs. Bangladesh* (2010) 39 CLC (HCD), 2010.

¹⁴⁹ Bangladesh High Court issues contempt rule against 14 Government Officials: ministries and shipbreakers asked to account for non-compliance with 2009 judgment (*NGO Shipbreaking Platform*, 2016), <<https://shipbreakingplatform.org/press-release-bangladesh-high-court-issues-contempt-rule-against-14-government-officials-ministries-and-shipbreakers-asked-to-account-for-non-compliance-with-2009-judgement/>>.

¹⁵⁰ *Ibid*.

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the right to life (a fundamental right)¹⁵¹ enshrines the spirit of environmental protection too.¹⁵² 'Right to life is to live in a healthy environment, where a healthy environment refers to an ecologically sound environment. However, the shipbreaking yards – in their reckless expansion and unsafe processing – have endangered the environment and human health to a great extent, violating their right to life.

8. CONCLUSION

The ship-breaking industry in Bangladesh is crucial for economic development and steel production. It has contributed to the employments to thousands of people, while taking lives of many. Not only that, it has also disturbed the ecosystem and marine environment of Bangladesh. The outdated mechanisms have caused these environmental and human casualties. To make the industry sustainable, Bangladesh needs to develop infrastructure and control antifouling paints, chemicals, PABs, PAHs, and persistent organic pollutants to protect marine the environment and biodiversity. Additionally, Bangladesh should introduce a dry-dock recycling approach for ship breaking, and washing ships in the docks to remove chemicals and benefit the environment and workers. The adoption of the Basel Ban Amendment would benefit all shipbreaking countries, and developed countries would share responsibilities with developing countries. Bangladesh should be adopting this Basel Ban amendment to implement green ship breaking and recycling industry. Adoption of a comprehensive Act, policy, and amendment of the previously adopted laws and policies along with their stringent implementation is needed to build a sustainable and green shipbreaking industry.

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¹⁵¹ The Constitution of Bangladesh 1972. Article 32

¹⁵² *Mohiuddin Farooque and others v. Bangladesh (Ministry of Communication)*, 22 BLD (HCD) 2002 345.

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Contribution	Author 1	Author 2	Author 3
Conceived or design the research analysis	Yes	No	No
Collected the data	Yes	Yes	No
Contributed to data analysis and Interpretation	Yes	Yes	Yes
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